

WHAT IS CLAIMED IS:

1. A press-fitting structure of an adjustment pipe for adjusting a compression amount of a spring member for biasing a valve member, the press-fitting structure comprising:

a cylindrical housing having an inner peripheral surface defining a cylindrical space in which the adjustment pipe is press-fitted to adjust the compression amount of the spring member by an adjustment of a press-fitted amount of the adjustment pipe; and

a lubricating material on at least one of an outer peripheral surface of the adjustment pipe and the inner peripheral surface of the cylindrical housing.

2. The press-fitting structure according to claim 1, wherein the lubricating material is adhered on at least one of the outer peripheral surface of the adjustment pipe and the inner peripheral surface of the cylindrical housing.

3. The press-fitting structure according to claim 1, wherein the lubricating material is formed on at least one of the outer peripheral surface of the adjustment pipe and the inner peripheral surface of the cylindrical housing.

4. The press-fitting structure according to claim 1, wherein the lubricating material is a solid lubricant.

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5. The press-fitting structure according to claim 4, wherein:

each of the adjustment pipe and the cylindrical housing is made of stainless steel; and

the solid lubricant is an oxalate film formed on at least one of the outer peripheral surface of the adjustment pipe and the inner peripheral surface of the cylindrical housing.

6. The press-fitting structure according to claim 1, wherein:

any one of the outer peripheral surface of the adjustment pipe and the inner peripheral surface of the cylindrical housing has a roughened surface; and

the lubricating material is a lubricating oil adhered on the roughened surface.

7. The press-fitting structure according to claim 1, wherein the valve member is a valve opening and closing a fuel injection port, for adjusting a fuel injection amount.

8. An adjustment pipe being press-fitted into a cylindrical housing, for adjusting a spring force of a spring member biasing a valve member, the adjustment pipe comprising:

a lubricating material on an outer peripheral surface of the adjustment pipe.

9. The adjustment pipe according to claim 8, wherein the lubricating material is a solid lubricating film formed on the outer peripheral surface of the adjustment pipe.

10. The adjustment pipe according to claim 9 wherein the solid lubricating film is an oxalate film.

11. The adjustment pipe according to claim 8, wherein:

the outer peripheral surface of the adjustment pipe is a roughened surface having plural fine recesses; and

the lubricating material is a lubricating oil adhered on the roughened surface.

12. A press-fitting method for press-fitting an adjustment pipe into a cylindrical housing for a fuel injection valve, the adjustment pipe being for adjusting a compression amount of a spring member biasing a valve member opening and closing a fuel injection port by an adjustment of a press-fitted amount of the adjustment pipe into the cylindrical housing, the press-fitting method comprising:

forming a lubricating material on at least one of an outer surface of the adjustment pipe and an inner surface of the cylindrical housing;

temporarily press-fitting the adjustment pipe into the cylindrical housing; and

adjusting the press-fitted amount of the adjustment

pipe into cylindrical housing to a predetermined amount, wherein,

in the adjusting, a test liquid is supplied into a temporarily assembled fuel injection valve, and repeating a confirmation operation of a fuel injection amount from the fuel injection port by opening and closing the valve member while the adjustment pipe being gradually press-fitted into the cylindrical housing.

13. The press-fitting method according to claim 12, wherein,

in the forming, a solid lubricating film is formed on at least one of the outer surface of the adjustment pipe and the inner surface of the cylindrical housing.

14. The press-fitting method according to claim 13, wherein the solid lubrication film is an oxalate film.

15. A press-fitting method for press-fitting an adjustment pipe into a cylindrical housing for a fuel injection valve, the adjustment pipe being for adjusting a compression amount of a spring member biasing a valve member opening and closing a fuel injection port by an adjustment of a press-fitted amount of the adjustment pipe into the cylindrical housing, the press-fitting method comprising:

providing a plurality of fine recesses on one of an outer surface of the adjustment pipe and an inner surface of

the cylindrical housing;

adhering a lubricating material on the one of the outer surface of the adjustment pipe and the inner surface of the cylindrical housing;

temporarily press-fitting the adjustment pipe into the cylindrical housing; and

adjusting the press-fitted amount of the adjustment pipe into cylindrical housing to a predetermined amount, wherein,

in the adjusting, a test liquid is supplied into a temporarily assembled fuel injection valve, and repeating a confirmation operation of a fuel injection amount from the fuel injection port by opening and closing the valve member while the adjustment pipe being gradually press-fitted into the cylindrical housing.

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